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Impacted WG/TF: Markets+ Greenhouse Gas Task Force (MGHGTF)

Subject Area: MGHGTF Protocols

Markets+ Tariff:

ATTACHMENT K

Markets+

GREENHOUSE GAS PROGRAMS

1. Introduction

This Attachment addresses GHG Pricing Programs and GHG Reduction Programs in Markets+.

2. Type 1A Energy

- 2.1** A Specified Source Resource must not offer Type 1A Energy in excess of the projected load to which the Type 1A Energy is contracted. An offer of Type 1A Energy will not be treated as Type 1A Energy in Markets+ if it exceeds the projected load to which the Type 1A Energy is contracted.
- 2.2** A Specified Source Resource offering Type 1A Energy must have transmission service, or be able to demonstrate the ability to procure transmission service, to the load to which the Type 1A Energy is contracted.
- 2.3** Specified Source Resources that intend to offer Type 1A Energy will provide notification to the Market Operator of the existence of the agreement to supply the GHG Pricing Zone. The Load Responsible Entity must verify the existence of the agreement prior to the Specified Source Resource offering Type 1A Energy in Markets+. Either the Specified Source Resource or the Load Responsible Entity must promptly notify the Market Operator of the renewal or termination of such agreement.

3. Market Clearing Process

3.1 A Specified Source Resource may opt-in to offer Energy into a GHG Pricing Zone by including a Specified GHG Adder in its Resource Offer. In such cases, the Energy will be available to be attributed to the GHG Pricing Zone.

3.2 Participation of Resources relative to a GHG Pricing Zone.

3.2.1 A Specified GHG Adder will be included in the cost of all Energy cleared in Markets+ from an Internal GHG Resource. All Energy cleared in Markets+ from an Internal GHG Resource will be attributed to the GHG Pricing Zone.

3.2.2 A Specified GHG Adder will be included in the cost of all Type 1A Energy cleared in Markets+ and such Energy will be attributed to the GHG Pricing Zone.

3.2.3 A Specified Source Resource may offer Type 1B Energy and Type 2 Energy simultaneously during the same market interval.

3.2.3.1 If Type 1B Energy and Type 2 Energy are offered simultaneously during the same market interval, the quantity of Type 1B Energy offered must be below the Surplus Threshold.

3.2.4 A Specified Source Resource may not offer Type 1A Energy simultaneously with Type 1B Energy or Type 2 Energy.

3.2.5 If Type 1B Energy or Type 2 Energy is attributed to the GHG Pricing Zone, a Specified GHG Adder will be included in the cost of that Energy.

3.2.6 If Type 1B Energy or Type 2 Energy is not attributed to the GHG Pricing Zone, a Specified GHG Adder will not be included in the cost of that Energy.

3.2.7 The Unspecified GHG Adder will be included in the cost of all Unspecified Source Imports.

- 3.2.8** Import Interchange Transactions that sink at a load location registered in a GHG Pricing Zone will be attributed to that GHG Pricing Zone.
- 3.3** A Virtual Energy Offer at a Settlement Location within a GHG Pricing Zone will be treated in the market as having a Specified GHG Adder of zero.
- 3.4** A Market Participant may submit a Surplus Threshold in its Resource Offer for Type 2 Energy.
- 3.5** A Market Participant must submit Resource Offer information in accordance with Attachment A, Section 6.9.
- 3.6** If a Market Participant does not submit a Surplus Threshold for Type 2 Energy in its Resource Offer, the Market Operator will identify the Type 2 Energy's Surplus Threshold by the merit order process.
- 3.6.1** The merit order process will take into consideration the Resource Offer, excluding the Specified GHG Adder, and will economically stack Energy available to serve an Asset Owner's load obligation until the available capacity, excluding any capacity above the Surplus Threshold identified by the Market Participant under Attachment K, Section 3.4 is either exhausted or has met that load obligation. If the available capacity exceeds the Asset Owner's load obligation, then a Surplus Threshold exists.
- 3.6.2** If there is remaining Type 2 Energy after the merit order process, then the Surplus Threshold for the Type 2 Energy is set at the increment of Energy that exceeds the Asset Owner's load obligation.
- 3.7** For Type 2 Energy, the Market Operator will:
- 3.7.1** Calculate the Surplus as the projected dispatch quantity of Energy above the Surplus Threshold for each offer of Type 2 Energy, which is available to supply the GHG Pricing Zone; and

- 3.7.2** Consider the Surplus quantity determined in Attachment K, Section 3.7.1 when dispatching Type 2 Energy to the GHG Pricing Zone.

4. GHG Program Tracking and Reporting

- 4.1** The Market Operator will provide data as specified in the Markets+ Protocols to support tracking and reporting required by GHG Pricing Programs, GHG Reduction Programs, and other mandatory GHG reporting programs.

- 4.2** The Market Operator will disclose Confidential Information requested by GHG Pricing Programs, GHG Reduction Programs, and other mandatory GHG reporting programs, only when such information is requested by an Authorized Requestor through the process provided in Attachment A, Section 11.

Markets+ Protocols:

Definitions

Allocation

The post-market process of allocating all owned and contracted Energy produced to Reporting Entities, Non-Reporting Entities, and Residual Energy for purposes of the Market Operator producing the Reporting Entity GHG Report and Public GHG Report.

Attribution

The output of the market clearing process described in Attachment K, Section 3 of the Markets+ Tariff, in which the market clearing process ascribes megawatts (“MWs”) to load within a GHG Pricing Zone.

Authorized Requestor

As defined in the Markets+ Tariff.

Excess Energy

Energy from Resources in a Load Responsible Entity’s Resource Portfolio that exceeds the Load Responsible Entity’s load within Markets+ in each hourly interval.

Reporting Entity GHG Report

A report created by the Market Operator published on the METra portal as described in Section 5.8.6(i) that contains GHG data and information specific to a Reporting Entity’s Resource Portfolio for each hour, and which is only accessible by that Reporting Entity.

Public GHG Report

The public information report created by the Market Operator and published on the SPP website as described in Section 5.8.6(ii).

Load Responsible Entity

As defined in the Markets+ Tariff.

Market Participant

As defined in the Markets+ Tariff.

METra Portal

The Markets Emissions Tracking and Reporting electronic database, in which the Market Operator receives, stores, and publishes data and information relating to emissions tracking and reporting.

Non-Reporting Entity

An LRE which has not elected to participate in the Markets+ GHG tracking and reporting program, and which does not receive a GHG Report.

Non-Reporting Area

The subdivision within Markets+ comprised of Non-Reporting Entities.

Null Power

Energy designated by a Reporting Entity indicating that the Renewable Energy Certificates and/or nonpower attributes have been separated from the Energy and retained by the Reporting Entity or sold to a third party. Nothing in these protocols requires a Reporting Entity to designate power as null.

Residual Energy

The Energy not mapped to a particular Reporting Entity in Markets+, combined with the Excess Energy.

Reporting Entity

A Load Responsible Entity which has elected to participate in the Markets+ GHG tracking and reporting program, and which receives a Reporting Entity GHG Report from the Market Operator.

Resource Mapping

The pre-market process for identifying owned and contracted Resources, and designating these Resources to Load Responsible Entities, non-GHG areas, or Residual Energy.

Renewable Energy Certificate (“REC”)

A tradeable instrument representing the renewable and environmental attributes of 1 MWh of Energy from a renewable Resource.

Resource Portfolio

For purposes of GHG tracking and reporting, the collection of Resources mapped to a Load Responsible Entity.

5.8 Tracking and Reporting

5.8.1 Emission Factors

A Market Participant may submit to the Market Operator an emission factor for its registered Resource(s). Otherwise, the Market Operator will use the emission factor published by the EPA in the Emissions and Generation Resource Integrated Database (“eGRID”) or, if unavailable, the emission factor published by the U.S. Energy Information Administration (“EIA”). In the event that neither the EPA nor the EIA have published an emission factor for a Resource, the Market Operator will calculate an emission factor based on the Resource fuel type.

A Market Participant that elects to submit an emission factor to the Market Operator will submit the emission factor in the METra Portal. The Market Participant will update the METra Portal as necessary to reflect any changes in the Resource’s emission factor.

5.8.2 GHG Resource Mapping and Allocation

- (i) Each Market Participant’s owned Resources will be populated in the METra Portal for selection by Reporting Entities in accordance with the Market Operator’s commercial model and registration process. Prior to the start of the Day-Ahead Market, and using the METra Portal, a Reporting Entity will identify owned and contracted Resources, including partially-owned Resources, to be mapped to the Reporting Entity.
 - (a) If a Reporting Entity has not mapped all of its owned Resources, the Market Operator will map the owned Resource(s) to the applicable Reporting Entity.
 - (b) With respect to contracted-for Resources, the following apply:
 - 1. The selling Market Participant will input contracts to the METra Portal
 - 2. The relevant counterparty must provide confirmation of the contract in the METra portal prior to the start of the Day-Ahead Market.
 - (c) Market Participants with Markets+ registered Resources will have access to the METra Portal to input and confirm contracts and designate the respectively owned Resources.
 - (d) The Reporting Entity’s Resource mapping will continue unless or until the Market Participant changes any Resource designation(s). If the Market Participant changes its designation(s) after a Day-Ahead Market run, those changes will apply to any subsequent Day-Ahead market runs.

- (ii) The Market Operator will automatically map a Non-Reporting Entity's owned Resource(s) to that Non-Reporting Entity excluding any Resources that have been mapped to a Reporting Entity.
- (iii) If the Market Operator identifies an instance where more than one Reporting Entity claims the same Energy for the mapping process, the Market Operator will notify the affected Reporting Entities as soon as practicable, and the mapping will remain unchanged until the Market Operator is notified by the Reporting Entities that the competing claims have been resolved. Once the Market Operator is notified of a resolution between the parties, the Market Operator may revise previous Reporting Entity GHG Reports, to the extent feasible, to reflect the resolution between the Reporting Entities.

5.8.2.1 GHG Pricing Zone Allocations

- (i) Type 1A or Type 1B Energy Attributed to a GHG Pricing Zone will be Allocated to the Reporting Entity to which the Energy is contracted.
- (ii) Type 2 Energy Attributed to a GHG Pricing Zone will be Allocated to Reporting Entities in GHG Pricing Zones with any positive difference between the load and generation in their Resource Portfolio on a pro rata basis to each of those Reporting Entities based on that positive difference.

5.8.2.2 Attestation

- (i) This section 5.8.2.2 applies only where a state regulatory body requires a Reporting Entity to identify its Resource Mapping in Section 5.8.2 and/or to confirm its Excess Energy methodology in Section 5.8.4 to the state regulatory body.
- (ii) Through the annual execution of an attestation submitted to the Market Operator, and not later than December 15th preceding the relevant calendar year, the Reporting Entity must represent that the following are true:
 - (1) The Reporting Entity has notified the state regulatory body of its Excess Energy methodology, and the state regulatory body does not object to the Reporting Entity's methodology;
 - (2) Reporting Entity has notified the state regulatory body of Resources mapped to the Reporting Entity, and the state regulatory body does not object to the Reporting Entity's Resource Mapping; and

- (3) The Reporting Entity will, as may be necessary and required, notify the state regulatory body of changes in the Resources mapped to the Reporting Entity, or in changes to its Excess Energy methodology.
- (iii) If the state regulatory body notifies the Market Operator of a dispute regarding the Reporting Entity's Resource Mapping, the Reporting Entity will, for the duration of the dispute, default to the Resource Mapping that aligns with the state regulatory body's preference. During period of dispute, the Market Operator will adhere to Resource Mapping as specified above. Once the state regulatory body and the Reporting Entity inform the Market Operator of a resolution, the Market Operator will retroactively apply the agreed-upon Resource Mapping, to the extent practicable.
- (iv) If the state regulatory body notifies the Market Operator that it disputes the Reporting Entity's Resource Allocation methodology, the Market Operator may default to the average emissions of the Resource stack while the dispute is pending. Once the state regulatory body and the Reporting Entity notify the Market Operator that a resolution has been reached, the Market Operator will retroactively apply the Resource Allocation methodology, to the extent feasible.

5.8.3 Null Power

- (i) Prior to the start of the Day-Ahead Market, a Reporting Entity may designate Null Power associated with its Resource(s). If a Reporting Entity designates Null Power prior to the start of the Day-Ahead Market, the Market Operator may subsequently adjust the amount of Null Power at the direction of the Reporting Entity as necessary to align with actual output. Alternatively, a Reporting Entity may designate or adjust a volume of Null Power through the METra Portal by making such designation or adjustment not more than ninety (90) Calendar Days after the relevant Operating Day.

5.8.4 GHG Residual Energy

- (i) A Reporting Entity will communicate to the Market Operator its methodology for determining how Excess Energy is allocated to Residual Energy. A Reporting Entity must notify the Market Operator, via the METra Portal, of its excess methodology by December 15th preceding the relevant calendar year. A Market Participant may not elect to change its methodology under this provision more than once every three (3) years.
- (ii) SPP may allow for exceptions to the above-recited rule should any change in state rule, regulation, or law necessitate a change in methodology.

- (iii) The methodologies available for selection by the Reporting Entity are:
- a. **Average Resource Portfolio.** A Load Responsible Entity's Excess Energy will contribute to the Residual Energy calculation using the weighted average production of the Load Responsible Entity's mapped Resources during the relevant market interval. The emissions contributed to Residual Energy will be calculated using the weighted average production and emission factor of each.
 - b. **Economic Resource Stack.** The Market Operator constructs an hourly Resource stack based on the economic order of each offer segment of the Resources in the Reporting Entity's Resource Portfolio from lowest cost to highest cost of the Reporting Entity's Real Time Balancing Market Energy Offers (inclusive of the GHG Adder for the portion of any Resource Attributed to a GHG Pricing Zone) up to the hourly average of the Resource actual output in the RTBM. With respect to a Resource which submits a Commitment Status of Self or Reliability Must Run ("RMR"), the RTBM Offer Curve up to the Resource's Minimum Economic Capacity Operating Limit will be considered the lowest cost supply for purposes of this economic order process and will be added to the merit order stack first. For partially contracted Resources to a Reporting Entity, inclusive of partial contracts on Resources allocated to a GHG Pricing Zone, the average of the RTBM Energy Offer Curve will be used to place the Resource in the appropriate position of the Resource stack. In the event the Reporting Entity's load value falls on a Resource stack that includes non-unique Energy Offer Curve segments, the Market Operator will evenly split the Excess Energy MWs between the equivalent Resources where the emission factors of the equivalent Resources will be used in combination with the split Excess Energy MWs to contribute to the Residual Energy.

The following example illustrates how the Market Operator will associate emissions with any Excess Energy MWs from a Reporting Entity based on the economic Resource stack. Exhibit 5-1 provides a summary of the raw data inputs needed to perform the economic Resource stack. For this example, assuming one-hour snapshot granularity, there are four (4) Resources mapped to the Reporting Entity. The Commitment Status, Energy Offer Curve, and Resource output data are obtained after each RTBM solution. The economic Resource stack is performed for each hour of the Operating Day.

Exhibit 5-1

Economic Resource Stack Input Data

RTBM	Emission Factor	Hourly Avg Resource Output (MW)	Commit Status	Energy Offer Curve								
				Min Limit (MW)	Incr Cost (\$/MWh)	Incr MW2 (MW)	Incr Cost2 (\$/MWh)	Incr MW3 (MW)	Incr Cost3 (\$/MWh)	Incr MW4 (MW)	Incr Cost4 (\$/MWh)	
R1	0	200	Market	50	\$20	75	\$24	75	\$30			
R2	0.7	300	Market	100	\$25	100	\$27	100	\$35			
R3	0.9	500	Self	100	Self	150	\$34	150	\$35	100	\$42	
R4	0.5	200	Market	75	\$45	50	\$50	75	\$55			
Sum Resource Output		1,200										
LRE Load		800										
Excess Energy		400										

Using the input data shown in Exhibit 5-1, the Market Operator creates the economic Resource stack for the Reporting Entity. Each Resource energy offer segment is sorted from lowest cost to highest cost. Consistent with the rules described under Section 5.8.4(v)(b) the cost of the minimum capacity segment of the Resource with a Commit Status of “Self” is considered the lowest value. The total output of all resources for this Reporting Entity is 1,200 MWs. The Reporting Entity Load is 800 MWs, therefore in this example, the Excess Energy contributed to the Residual Energy is 400 MWs for the Reporting Entity.

Exhibit 5-2

Economic Resource Stack

Row	Resource	Incr MW	Cost (\$/MWh)	Cumulative MW	Emission Factor
13	R4	75	\$55	1,200	0.5
12	R4	50	\$50	1,125	0.5
11	R4	75	\$45	1,075	0.5
10	R3	100	\$42	1,000	0.9
9	R3	150	\$35	900	0.9
8	R2	100	\$35	750	0.7
7	R3	150	\$34	650	0.9
6	R1	75	\$30	500	0
5	R2	100	\$27	425	0.7
4	R2	100	\$25	325	0.7
3	R1	75	\$24	225	0
2	R1	50	\$20	150	0
1	R3	100	Self	100	0.9

Each Resource’s energy offer segment is sorted from lowest cost to highest cost. Consistent with the rules described under Section 5.8.4(v)(b) the cost of the minimum capacity segment of the Resource with a Commit Status of “Self” is considered the lowest value.

Exhibit 5-3

Association of Emission Factors for Residual Energy

Row	Emission Factor	Resource	Inc MW	Cost (\$/MWh)	Cumulative MW	Load	Incr Resource Output	Excess	MW and Emission Factor used in Residual Market Mix
13	0.5	R4	75	\$55	1200				
12	0.5	R4	50	\$50	1125				1125 - 1200 MWs at 0.5
11	0.5	R4	75	\$45	1075				1075 - 1125 MWs at 0.9
10	0.9	R3	100	\$42	1000				1000 - 1075 MWs at 0.9
9	0.9	R3	100	\$35	900				900 - 1000 MWs at 0.9
8	0.7	R2	50	\$35	800				800 - 900 MWs at 0.7
8	0.7	R2	100	\$35	750				
7	0.9	R3	150	\$34	650				
6	0	R1	75	\$30	500				
5	0.7	R2	100	\$27	425				
4	0.7	R2	100	\$25	325				
3	0	R1	75	\$24	225				
2	0	R1	50	\$20	150				
1	0.9	R3	100	Self	100				
						800 MW	1200 MW	400 MW	

In this example, the Reporting Entity has selected the Economic Resource Stack, indicating that any Excess Energy megawatts (MWs) will contribute to the Residual Energy using the emission factors associated with the resources positioned above the Reporting Entity's load value. Here, the 800 MW load value corresponds to Row 8, Resource 2.

A key consideration in this example is that the costs of Row 8 and Row 9 are equivalent. To determine the appropriate emission factor for the Excess Energy, the Market Operator will calculate the difference, starting at the load value and ending at next segmented Resource in the stack above the equivalent values. The MW value calculated will then be split equally the equivalent Resources. The Excess Energy segment begins at Row 8 with 800 MW from Resource 2 and extends to Row 10 at Resource 3 with 1,000 MW resulting in a range of 200 MWs. By dividing the 200 MW range between Resource 2 and Resource 3, we effectively assign 100 MW from Resource 2 at an emission factor of 0.7, and 100 MW from Resource 3 at an emission factor of 0.9 toward contribution to the Residual Energy.

The final column of Exhibit 5-3 details the MW range and corresponding emission factors used to calculate the Residual Energy. This example demonstrates how the emission factor for Excess Energy is determined when the load value aligns with Resources of equivalent costs. If the Resource stack does not consist of equivalent costs, the contribution of Excess Energy MWs to Residual Energy will be based on the emission factors associated with their respective positions in the stack.

- c. **Manual Stack.** The Reporting Entity will provide the Market Operator with an order in which to stack the Resources in its Resource Portfolio at the time of the election of the excess methodology. If a Reporting Entity adds a new Resource to its portfolio, whether owned or contracted it must communicate where the Resource should be placed in the stack order. With respect to a Resource which submits a Commitment Status of Self or Reliability Must Run (“RMR”), the Resource’s Minimum Economic Capacity Operating Limit will be considered the lowest cost supply for purposes of the manual stack and will be added to the manual order stack first. Any Excess Energy MWs will be contributed to the Residual Energy at the emission factors associated with the Resources in positions on the stack after the Load value for the Reporting Entity has been reached.
- d. **Other Methodology Mandated by a State Regulatory Body.** If a state regulatory body mandates that another methodology be used by a Reporting Entity, then the Reporting Entity will submit such methodology to the Market Operator. The Market Operator will use the submitted methodology to determine how Excess Energy is allocated to the Residual Energy calculation for the Reporting Entity.

- (iv) The Market Operator will reflect the Reporting Entity's Excess Energy in the Residual Energy calculation. For Reporting Entities who do not elect a methodology, Excess Energy will be contributed to the Residual Energy calculation at the average Resource Portfolio emission factor as outline in Section 5.8.4 (3) (a) of these Markets+ Protocols.
- (v) A Non-Reporting Entity's methodology for determining how Excess Energy is allocated to the Residual Energy calculation will automatically default to the "Average Resource Portfolio" methodology set forth in 5.8.4(3)(a).
- (vi) For purposes of establishing GHG Tracking and Reporting regions and sub-regions, individual states, and/or GHG Zones, a future process will be commenced within the MGHGTF to determine the appropriate regions, sub-regions, states, and/or GHG Zones prior to Markets+ go-live. Regions, sub-regions which may be based on an analysis of transmission constraints, individual states, or GHG Zones that will be aggregated for reporting purposes may be proposed by Market Participants or Market Stakeholders through communications with Market Participants and the Market Operator. Each region, sub-region, individual state, or GHG Zone must have at least three (3) Market Participants for the aggregated data to be published with the Public GHG Report. All Market Participants will have an opportunity to provide input with respect to any proposed regions, sub-regions, states, and/or GHG Zones. The MGHGTF will review regions and subregions on an annual basis.
- (vii) The Excess Energy methodology information described in 5.8.4(i) will be used for the Residual Energy amounts in Section 5.8.6 (ii) of these Markets+ Protocols.

5.8.5 Electric Storage Resources ("ESRs")

- (i) The Market Operator will map ESRs to the Reporting Entities which designated the ESRs as owned or contracted in the Mapping process.
- (ii) With respect to mapped ESRs, the Market Operator will add the ESR's MWs to the Reporting Entity's load value during withdraw intervals. During discharging intervals, the Market Operator will deduct the ESR's MWs from the Reporting Entity's load value.
- (iii) For ESRs that are not mapped to Reporting Entities, the Market Operator will report aggregated withdraw MWs and aggregated discharging MWs per interval in the Public GHG Report, as outlined in outlined in Section 5.8.6 of these Markets+ Protocols.

5.8.6 Reporting Entity GHG Report and Public GHG Report

(i) On the 7th Calendar Day of each month, the Market Operator will post a Reporting Entity GHG Report on the METra Portal which contains data and information specific to a Reporting Entity's Resource Portfolio for each hour, and which is only accessible by that Reporting Entity. The Market Operator will work with each Reporting Entity to accommodate any specific reporting needs. The Reporting Entity GHG Report will have an iterative rerun on a quarterly and annual basis to capture any changes to the data. Data in the report will include, but not be limited to:

1. The production MW of each registered Resource of the Reporting Entity;
2. The associated emission factor of each registered Resource of the Reporting Entity;
3. The production GHG emissions of each registered Resource of the Reporting Entity;
4. The Allocated MW of each Resource to the Reporting Entity;
5. The Allocated GHG emissions of each Resource of the Reporting Entity;
6. The MW volume of each Resource contracted from and contracted to the Reporting Entity;
7. The respective Reporting Entity counterparty for each contracted Resource of the Reporting Entity;
8. The Attributed MW and GHG emissions of each Resource of the Reporting Entity;
9. A production-weighted average emission factor of all Resources within the Reporting Entity's Resource Portfolio;
10. The Excess Energy methodology of the Reporting Entity;
11. The Excess Energy of each Resource of the Reporting Entity;
12. The Null Power volumes and emissions of each Resource of the Reporting Entity;
13. Load of the Reporting Entity.

(ii) In addition, the Market Operator will post a monthly, quarterly, and annual Public GHG Report with information containing aggregate data elements on the METra Portal for the Markets+ Footprint and any established regions, sub-regions, individual states, or GHG Zones as determined under Section 5.8.4.

1. The Residual Energy data:
 - i. The volume and emissions in total and by fuel type of Residual Energy;
 - ii. The volume and emissions in total and by fuel type of Excess Energy;
 - iii. Null Power:

- iv. The hourly volumes of Null Power without underlying fuel type in the monthly Public GHG Report;
 - v. The quarterly aggregated volumes of Null Power by fuel type in a quarterly and annual Public GHG Report;
 - vi. The volume and emissions in total and by fuel type of Energy not Mapped to a Reporting or Non-Reporting Entity.
 2. The sum of the production volume and emissions by fuel type:
 - i. The weighted average production emissions by fuel type;
 - ii. The sum of the load volume;
 - iii. The sum of the Allocated volume and emissions by fuel type;
 - iv. The sum of the Allocated Null Power volume;
 - v. The sum of the volume of Energy from Reporting Entities where the output of the Resources in the Reporting Entity's Resource Portfolio is less than the Reporting Entity's load;
 - vi. The sum of the volume of Energy from Reporting Entities where the output of the Resources in the Reporting Entity's Resource Portfolio is greater than the Reporting Entity's load;
 - vii. The Marginal GHG Shadow Price in the Day-Ahead Market and in the Real-Time Balancing Market;
 - viii. The maximum GHG Adder of dispatched Resources.
- (iii) The granularity of the above-described data will be hourly, monthly, quarterly, and annually, as technically feasible, and unless otherwise specified in the list above.
- (iv) Each Reporting Entity GHG Report is provided for informational purposes and may be used by any Reporting Entity at its discretion.
- (v) Annual Reporting Entity GHG Reports will be published by April 1 of each calendar year for the prior calendar year.
- (vi) The METra Portal will be accessible to all Reporting Entities, as well as to Non-Reporting Entities necessary to confirm contracted-for Resources pursuant to 5.8.2(b). Data or information that is Confidential Information, or which contains proprietary or sensitive information, will be accessible on the METra Portal only by the applicable Reporting Entity or, as applicable, to a Non-Reporting Entity which must confirm contracted-for Resources pursuant to 5.8.2(b).
- (vii) An Authorized Requestor may request Confidential Information from the Market Operator about Market Participants which are not subject to the Authorized Requestor's jurisdiction in accordance with Section 11 of Attachment A to the Markets+ Tariff.

5.8.7 Public GHG Report Disclaimers

A Public GHG Report is for informational purposes only and does not constitute or convey to a Market Participant any claim to any non-power attributes (including fuel type and associated emissions rate) for energy designated as Null Power.

- (a) If a Public GHG Report is used as the basis for a claim to any non-power attributes for Energy designated as Null Power, it could jeopardize the ability of the owner of the associated Renewable Energy Credits (RECs) or other non-power attributes to use its RECs or other non-power attributes for voluntary or compliance program purposes. Each Reporting Entity is responsible for ensuring that participation in these tracking and reporting protocols is compatible with any and all related compliance obligations the Reporting Entity may have. The Market Operator does not have a compliance or monitoring obligation associated with this disclaimer. Each state within the Markets+ Footprint may have different regulations and definitions that apply to the terms used in this disclaimer.
- (b) Including Null Power at the emissions rate associated with the underlying Resources for Residual Energy may understate emissions for purposes of calculating an emissions rate that is consistent with the claims to RECs and on non-power attributes.
- (c) Excluding Null Power from the calculation of an emission factor for Residual Energy for purposes of determining total emissions associated with serving load under accounting systems that are not based on claims to RECs or nonpower attributes may overstate emissions relative to actual emissions of generating Resources in that hour.